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June 30, 2008

Gabrielle Stebbins
Massachusetts Riverways Program
Department of Fish and Game
251 Causeway St.
Boston, MA 02114

Ms. Stebbins,

It is with pleasure that we submit the enclosed Ipswich River Greenway Feasibility Study funded in part by a Stream Team Implementation Award from the Riverways Program. The study was conducted jointly by the Reading/North Reading Stream Team and the Reading Conservation Commission with the assistance of a wetlands consultant.

Our goal was to determine the environmental impact and technical feasibility of completing a .87 mile length of the greenway, most of it boardwalk, along the Ipswich River between the Lobs Pound Mill site and the Reading Town Forest. We hoped to develop a cost estimate with sufficient detail to estimate partial costs as well as changes in scope or materials. Finally, we hoped to put together enough information to allow the Town to apply for a grant to fund the project. With Riverways help, we have met our goals.

On behalf of the Stream Team and the Town of Reading, thank you.

Sincerely,

Kim Honetschlager
GIS Coordinator
Town of Reading
16 Lowell Street
Reading, MA 01867

IPSWICH RIVER GREENWAY FEASIBILITY STUDY
Town of Reading, MA
June 30, 2008

This project is funded in part by the Riverways Program of the MA Department of Fish and Game.

I. Summary

Between January and June 2008 the Reading/North Reading Stream Team, the Reading Conservation Commission, and a wetlands consultant completed a feasibility study for a greenway along the Ipswich River in Reading. The study focused on a .87 mile, unbuilt section of the 2.7 mile greenway, which closely follows the Ipswich River between Mill Street and the Town Forest. The study sought to determine both the ecological impact of the proposed trail – much of it boardwalk – and the cost of the trail. The trail was found to be technically and environmentally feasible assuming that 1) the boardwalk sections are supported by helical screws and 2) that the trail could qualify as a *limited project* under state wetlands regulation 310 CMR 10.53(3)(j). The study found that the trail could be built for an estimated $536,320 using pressure treated support lumber and composite decking (Appendix 1).

The challenges of building this section of trail are many. Approximately half the trail is within NHESP priority habitat of rare species and also estimated habitat of rare wildlife; half is within wetlands; fully three-quarters traverses FEMA 100 year floodplain; and all but the end sections of the trail are within the Riverfront area.

The rewards of completing this section of the greenway are equally many. This wild, even intimate, section of the river has relatively little intrusion from surrounding development (despite its proximity to Boston). The area is rich in wildlife and is rebounding after the cessation of pumping from Reading's water supply wells just upstream. It connects two recreation areas: Reading's well-used Town Forest and the under-utilized Lobs Pound Mill site. The latter is slated for an accessible fishing pier as well as accessible parking. The low gradient of the trail makes it ideal for use by walking impaired individuals. In addition, Reading has an active and energetic trails constituency. The Town's Trails Committee recently teamed with DPW staff, REI, and volunteers to build a .1 mile accessible section of the greenway.

Table 1: IPSWICH RIVER BOARDWALK COST ESTIMATE

	Composite Lumber (e.g. Trex)	5/4 PT Southern Pine	2" x 6" PT Southern Pine
2,501.5 Lineal Feet of Boardwalk			
Materials	$300,001.32	$263,701.32	$263,701.32
Installation	$173,637.20	$173,637.20	$173,637.20
Subtotal Boardwalk	**$473,638.52**	**$437,338.52**	**$437,338.52**
	Trex Edging	PT Edging	PT Edging
2,095.0 Lineal Feet of Earthen Trail			
Trail Materials	$25,915.03	$24,563.22	$24,563.22
Trail Labor	$26,826.80	$26,826.80	$26,826.80
Bridge Materials	$4,322.71	$3,451.51	$3,451.51
Bridge Installation	$5,616.60	$5,616.60	$5,616.60
Subtotal Earthen Trail	**$62,681.14**	**$60,458.13**	**$60,458.13**
Total Ipswich River Boardwalk	**$536,319.66**	**$497,796.65**	**$497,796.65**

II. Background

Ipswich River Greenway will connect town-owned open space along Reading's northern border following the river and its tributary Bare Meadow Brook for a distance of 2.7 miles. The conceptual plan for the Ipswich River Greenway is the result of a year and a half of study by a task force established for this purpose. Its implementation is the responsibility of the Town's five-member Trails Committee, with the support of the Conservation Commission, Town Forest Committee, and Water Department, who manage the land. Over half of the greenway already exists and, of the unbuilt sections, the boardwalk and at-grade trail along the river is both the longest and the most complex. It is the only section that will require professional help to implement. A major grant will be necessary to complete the trail, and the Town must understand the environmental impact, technical feasibility, and cost before proceeding.

Existing sections of the greenway offer a variety of habitat and trail surface, from woods roads through the Town Forest on the west end, to single track trails along stone walls and through open meadow at Bare Meadow on the east end. The historic Lobs Pound Mill site, part of the Biller Conservation Area, lies half-way and anchors the planned boardwalk. The mill site has a small picnic area and a canoe launch established and maintained jointly by the Town and the Reading/North Reading Stream Team. In addition, the Fishing and Boating Access Program of the Massachusetts Department of Fish and Game plans to build an accessible fishing pier at the site. An accessible trail to the fishing pier and additional parking (6-8 spaces total) are proposed. This parking area will also serve as a trailhead for the boardwalk.

The trail section addressed in this study will connect the Reading Town Forest with the Lobs Pound Mill site (see Conceptual Plan map). The trail-less riverbank between these two sites is .87 miles in length and is a mix of marsh, wooded floodplain, and upland. It will significantly improve river access and, hence, public knowledge of and advocacy for the river in accordance with the Stream Team's mission and its Action Plan.

The Town of Reading is currently experiencing a surge of interest in trails and in accessibility. The Town's Trails Committee teamed with REI in June 2008 to build a .1 mile accessible section of the greenway from the Mattera Conservation Area to Bare Meadow Conservation Area. This project brought together town staff, REI employees, and local volunteers including Stream Team and Conservation Commission members and serves as a model for future projects. The Conservation Commission and Boy Scouts also teamed up earlier this year to construct a new trail and boardwalk to extend the easternmost end of the Greenway from Bare Meadow to Haverhill Street.

III. Accessibility and Use Recommendations

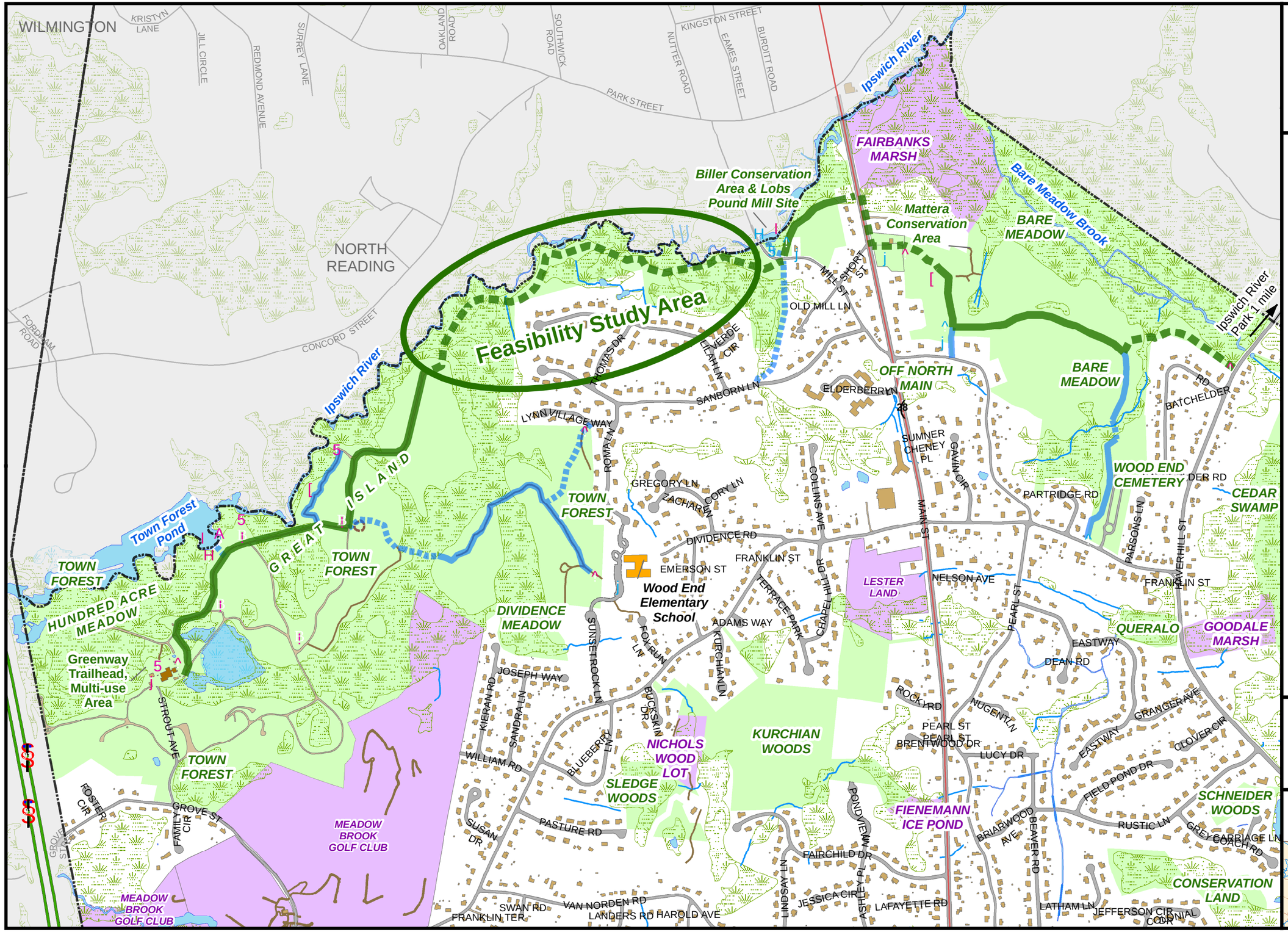
This section of the greenway will be limited to passive recreational use including walking, x-c skiing, snowshoeing, fishing and nature study. The following uses will be prohibited: motorized vehicles, skateboards, bicycles, and hunting. Bicycles are not allowed on land controlled by the Conservation Commission including the eastern end of the trail (sections 1 through 10). Bicycles *are* allowed in the Town Forest under Town Forest Committee rules (trail sections 11 through 29 are on a parcel controlled by that committee). See maps 1 and 2.

Boardwalk and at-grade sections will be *accessible* under commonly used trail guidelines and will be suitable for wheelchairs[1]. Appendix 2 includes a summary of accessibility standards from the National Center on Accessibility. The accessibility standards are *guidelines* and do not have the legal standing of the ADA. The accessible parking lot at the Mill Street end and the low gradient

[1] ***What is an accessible trail?*** *National Center on Accessibility. (Fall 2002, revised October 2007). Bloomington, IN: National Center on Accessibility, Indiana University-Bloomington. www.ncaonline.org.*

IPSWICH RIVER GREENWAY READING

CONCEPTUAL PLAN



Legend

- Town Boundary

Greenway Route

- Existing
- Proposed

Greenway Spurs

- Existing
- Proposed

Existing Amenities

- ^ Trailhead Kiosk
- j Parking
- H Canoe landing
- 5 Picnic Table

Proposed Amenities

- ^ Trailhead Kiosk
- j Parking
- ¦ Bench
- H Canoe landing
- [Overlook
- 5 Picnic Table
- I Fishing Pier
- A Viewing Tower

Open Space Ownership

- Municipal
- Private; Land Trust; Ch 61
- Trail, Path

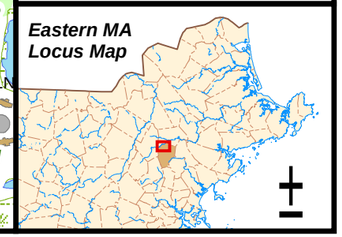
DEP Wetlands

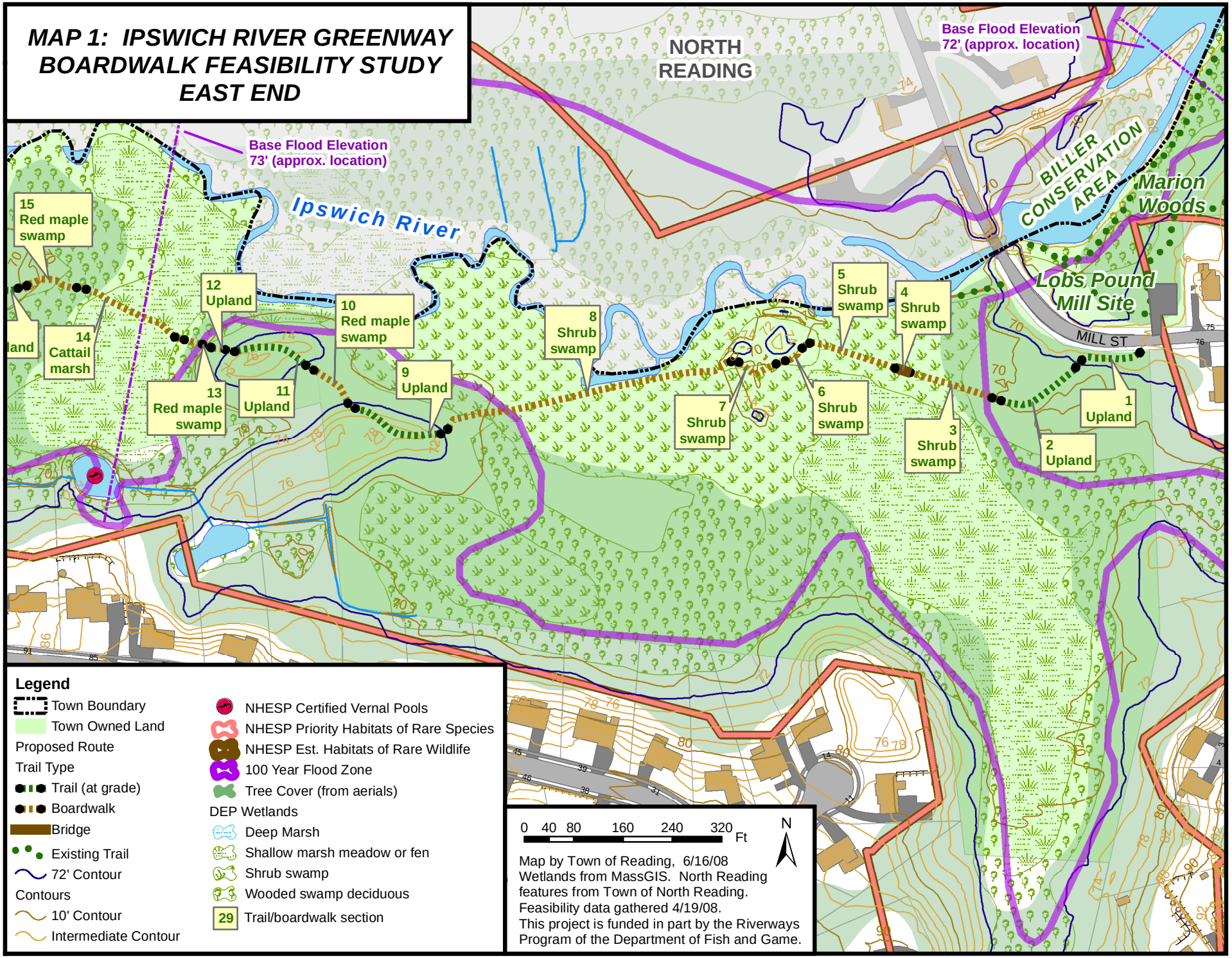
- Deep Marsh
- Shallow Marsh, Swamp

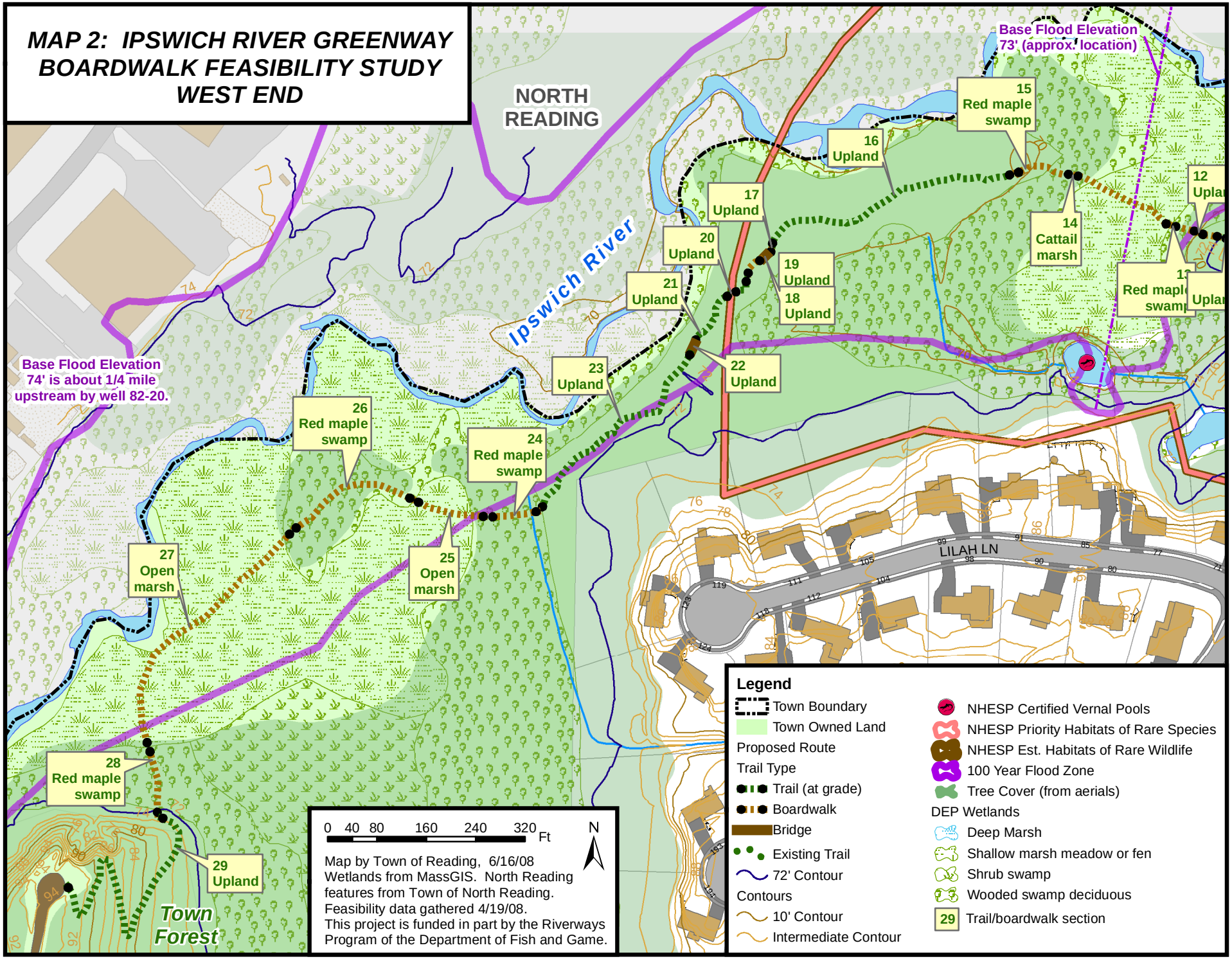
Map by Town of Reading, 11/21/07
Open space ownership current 1/1/07.
Roads, buildings, & hydrography from 1998 aerial photos.
Highways & wetlands from MassGIS.

0 200 400 600 800 1,000 Feet

Eastern MA Locus Map




MAP 1: IPSWICH RIVER GREENWAY BOARDWALK FEASIBILITY STUDY EAST END
NORTH READING
Base Flood Elevation 72' (approx. location)
Base Flood Elevation 73' (approx. location)
Ipswich River
BILLER CONSERVATION AREA
Marion Woods
Lobs Pound Mill Site
MILL ST
15 Red maple swamp
14 Cattail marsh
12 Upland
13 Red maple swamp
11 Upland
10 Red maple swamp
9 Upland
8 Shrub swamp
7 Shrub swamp
6 Shrub swamp
5 Shrub swamp
4 Shrub swamp
3 Shrub swamp
2 Upland
1 Upland
Legend
Town Boundary
Town Owned Land
Proposed Route
Trail Type
Trail (at grade)
Boardwalk
Bridge
Existing Trail
72' Contour
Contours
10' Contour
Intermediate Contour
NHESP Certified Vernal Pools
NHESP Priority Habitats of Rare Species
NHESP Est. Habitats of Rare Wildlife
100 Year Flood Zone
Tree Cover (from aerials)
DEP Wetlands
Deep Marsh
Shallow marsh meadow or fen
Shrub swamp
Wooded swamp deciduous
29 Trail/boardwalk section
0 40 80 160 240 320 Ft
N
Map by Town of Reading, 6/16/08
Wetlands from MassGIS. North Reading features from Town of North Reading.
Feasibility data gathered 4/19/08.
This project is funded in part by the Riverways Program of the Department of Fish and Game.


MAP 2: IPSWICH RIVER GREENWAY
BOARDWALK FEASIBILITY STUDY
WEST END
NORTH READING
Ipswich River
Base Flood Elevation 73' (approx. location)
Base Flood Elevation 74' is about 1/4 mile upstream by well 82-20.
15 Red maple swamp
16 Upland
17 Upland
14 Cattail marsh
20 Upland
19 Upland
18 Upland
21 Upland
22 Upland
23 Upland
26 Red maple swamp
24 Red maple swamp
27 Open marsh
25 Open marsh
28 Red maple swamp
29 Upland
Town Forest
LILAH LN
0 40 80 160 240 320 Ft
N
Map by Town of Reading, 6/16/08
Wetlands from MassGIS. North Reading features from Town of North Reading.
Feasibility data gathered 4/19/08.
This project is funded in part by the Riverways Program of the Department of Fish and Game.
Legend
Town Boundary
Town Owned Land
Proposed Route
Trail Type
Trail (at grade)
Boardwalk
Bridge
Existing Trail
72' Contour
Contours
10' Contour
Intermediate Contour
NHESP Certified Vernal Pools
NHESP Priority Habitats of Rare Species
NHESP Est. Habitats of Rare Wildlife
100 Year Flood Zone
Tree Cover (from aerials)
DEP Wetlands
Deep Marsh
Shallow marsh meadow or fen
Shrub swamp
Wooded swamp deciduous
29 Trail/boardwalk section

of the boardwalk make this feasible. The ramp leading from the boardwalk to the Town Forest road will be the biggest accessibility challenge. The grade should not exceed 1:20 and several resting/passing spots should be provided.

A width of six feet has been specified for the trail to make it easy for walkers and wheelchair users to walk abreast (allowing space for bumpers on both sides). The width could be reduced to four feet to minimize cost and wetlands impacts and still meet the accessible trail standard of 36 inches of clear tread width. Reducing the width, however, will require passing spaces every 1000 feet. These could be located in upland areas or combined with viewing areas to make a virtue out of a necessity.

Spaces between boards of the boardwalk must not allow a sphere one-half inch in diameter to pass through. This guideline conflicts with the desirability of wider gaps to allow sunlight to filter through to vegetation below.

IV. Ecological Assessment

Two site visits were conducted along the greenway route. On March 6, 2008 the consultant, the Conservation Administrator, and the GIS Coordinator visited both ends of the proposed trail on foot. High water level prevented venturing too far out the trail route. (The warm winter prevented a planned reconnaissance by ice.) On April 19, 2008 the above individuals were joined by volunteers from the Conservation Commission and Stream Team in canoes and kayaks (participants listed in Appendix 3). Four and one-half hours were spent flagging the route, taking GPS readings, and observing vegetation, soil conditions, and signs of wildlife. The river was seasonally high, but not at flood stage. All activity took place on public land. Abutters had been notified on February 13, 2008 that the study would be taking place (inserted after Appendix 3).

Maps 1, 2 and Table 2 detail site conditions. Approximately half the trail is within NHESP priority habitat of rare species and also estimated habitat of rare wildlife; half is within wetlands; fully three-quarters traverses FEMA 100 year floodplain; and all but the end sections of the trail are within the Riverfront area.

The greenway can be divided roughly in half with the eastern - Lobs Pound Mill - end being easier to build and hence having less impact on resources. (See the consultant's letter preceding Appendix 1 for more detail.) The trail would be primarily boardwalk placed on top of historic berms left over from the time when Reading's water supply was provided from this area. The berm closest to Mill Street may have bounded a cranberry bog prior to its use for water supply. The berms separate the river channel (often braided) from shrub swamp behind, and are cut by several small streams. The berms connect several upland areas with firm, high ground, primarily oaks and white pine.

The upland areas are above flood plain and are particularly rich for nature study (adjacent to sections 6 and 7, and sections 9 and 11). There is a beaver dam at Mill Street and two lodges upstream. The river runs in a well-defined channel at several points adjacent to these islands of upland. Pedestrian access will be easy from the accessible parking lot at the Lobs Pound Mill site. A feasible alternative to building the full greenway would be to build sections 1 through 13 terminating in a viewing platform.

The western half of the trail – section 14 to the gravel road in the Town Forest – will traverse open marsh and floodplain deciduous forest. The forest is low, wet, and not particularly interesting for nature study although the proposed earthen trail would be of relatively low wetlands impact. The cattail marsh (section 14) and the herbaceous emergent wetlands at the Town Forest end (sections 25 and 27) are more rewarding for nature study. The latter sections, however, pose the greatest degree of difficulty to minimize potential impacts: disturbance during construction and boardwalk shading impacts. Unless temporary access is granted through an

abutting property (unlikely), materials for the earthen trail will have to be transported across over 1,000 feet of marsh. The consultant's letter details the issues.

Table 2: Ipswich River Boardwalk Specs

SEGMENT	VEGETATION TYPE	FLOOD PLAIN	HABITAT	WETLANDS	LENGTH TRAIL	LENGTH BRDWALK	LENGTH BRIDGE	
1	Upland	N	Y	N	113.9	0.0	0.0	
2	Upland	Y	Y	N	157.6	0.0	0.0	
3	Shrub swamp	Y	Y	Y	0.0	154.0	0.0	
4	Shrub swamp	Y	Y	Y	0.0	0.0	10.4	
5	Shrub swamp	Y	Y	Y	0.0	160.3	0.0	
6	Shrub swamp	Y	Y	Y	0.0	51.2	0.0	
7	Shrub swamp	Y	Y	Y	0.0	86.3	0.0	
8	Shrub swamp	Y	Y	Y	0.0	496.0	0.0	
9	Upland	N	Y	N	167.4	0.0	0.0	
10	Red maple swamp	Y	Y	Y	0.0	95.3	0.0	
11	Upland	N	Y	N	140.1	0.0	0.0	
12	Upland	N	Y	N	0.0	38.3	0.0	
13	Red maple swamp	Y	Y	Y	0.0	46.2	0.0	
14	Cattail marsh	Y	Y	Y	0.0	180.5	0.0	
15	Red maple swamp	Y	Y	Y	0.0	101.2	0.0	
16	Upland	Y	Y	N	441.2	0.0	0.0	
17	Upland	Y	Y	N	0.0	16.2	0.0	
18	Upland	Y	Y	Y	0.0	0.0	6.1	
19	Upland	Y	Y	N	0.0	44.9	0.0	
20	Upland	Y	Y	N	44.1	0.0	0.0	
21	Upland	Y	N	N	108.9	0.0	0.0	
22	Upland	Y	N	Y	0.0	0.0	10.8	`
23	Upland	Y	N	N	385.9	0.0	0.0	
24	Red maple swamp	Y	N	Y	0.0	86.1	0.0	
25	Open marsh	Y	N	Y	0.0	123.8	0.0	
26	Red maple swamp	Y	N	Y	0.0	230.1	0.0	
27	Open marsh	Y	N	Y	0.0	458.1	0.0	
28	Red maple swamp	Y	N	Y	0.0	115.8	0.0	
29	Upland	N	N	N	535.8	0.0	0.0	
					2,095.0	**2,484.3**	**27.4**	ft
		76.3%	55.4%	52.4%	45.5%	53.9%	0.6%	
					0.40	0.47	0.01	mi
Total length (feet)		4,606.6						
Total length (miles)		0.87						

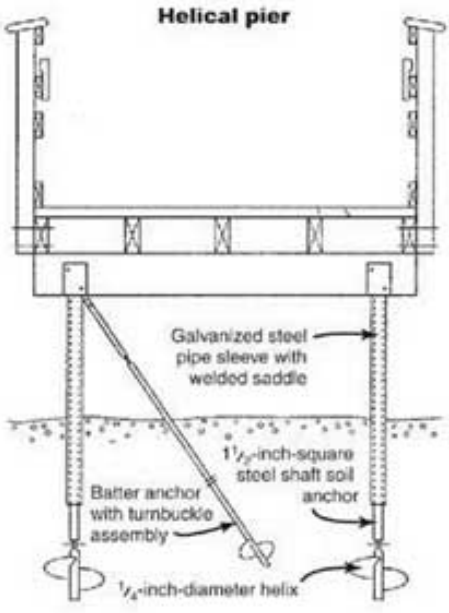
V. Technical Feasibility

Maps 1 and 2 and Table 2 show the result of the site visits and GIS analysis of the site. Fifty five percent of the trail is either boardwalk or bridge (2,502 feet). The remaining 45 percent of the trail will be earthen trail (2,095 feet). For the bridge and boardwalk sections, helical piers (also known as screw piles) will be used for support; the support structure will be pressure treated lumber, and the decking will be either a composite material (Trex is a commonly used brand name) or pressure treated. Appendix 1 provides a cost estimate including several material options.

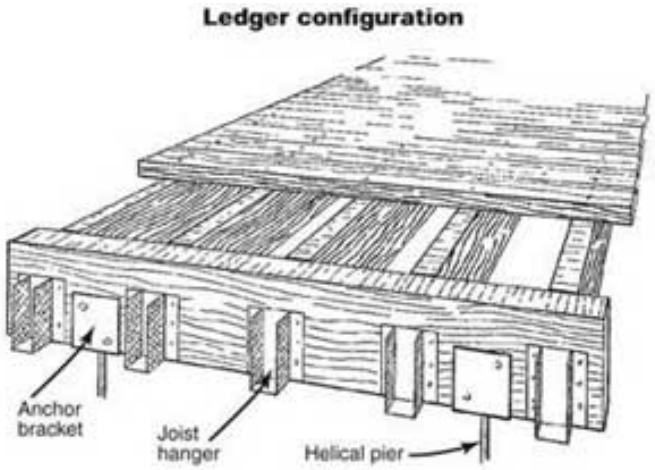
Boardwalk and bridge sections will be approximately 12 inches above the 100 year flood elevation.

A rubber-tracked skid loader is recommended for bringing materials into the site. Mats can be put down to minimize wetlands impact. An auger attachment on the skid loader or hand-held augers can be used to drive the helical piers. The recommended piers have a cross-section of 1.5 inches square and, once installed, have minimal wetlands impact or flood displacement.

Helical pile example.



Typical helical pile assembly.



Typical ledger configuration of a pile assembly.

Source: U.S. Dept. of Transportation, Wetland Trail Design and Construction. http://www.fhwa.dot.gov/environment/fspubs/01232833/found03.htm

VI. Cost Estimate

The estimated cost for the trail, assuming the use of composite decking and no volunteer labor is $536,320 (Table 1). See Appendix 1 for complete cost detail including material options. Costs could be reduced by using volunteer labor, by materials donations (such as a *buy a board* campaign), or by reducing the width of the boardwalk from six feet to four feet. If the width is reduced, the cost of creating passing spaces every 1,000 feet should be factored in.

Table 3: COST PER LINEAL FOOT

	Trex	**5/4 PT**	**2" x 6" PT**
Boardwalk cost per lineal foot	$189.34	$174.83	$174.83
Earthen trail cost per lineal foot	$25.06	$24.17	$24.17

The use of volunteer labor presents the largest potential cost savings. A savings of $48,000 is realized by backing out the cost of joist, decking, and bumper installation plus about two thirds of the earthen trail installation cost. Reading staff is confident that an army of volunteers can be raised based on our partnership with REI and Friends of Reading Recreation (a local non-profit with a proven record of volunteer recruitment). A partnership with a firm such as Timberland – which has formed comparable partnerships with other trails groups - is another option.

The potential savings by reducing the trail width are in the neighborhood of $20,000 if one assumes a 20% cost savings on the cost of boardwalk materials (decking, support timbers) and a 33% savings on stone dust. This could be calculated more precisely based on quantities specified in the cost estimate. (The majority of the hardware cost is in the helical piers and this cost is unchanged.)

Two areas of cost uncertainty remain: the cost of railings and the cost of bringing surface material into the earthen trail portion of the greenway. The estimated cost assumes that 4" x 4" bumpers will protect the edges of boardwalk and bridge sections. Railings may be desirable over deeper water or where the boardwalk is elevated well over the surrounding terrain. Over 2,500 feet of boardwalk and bridge is proposed. If even a fraction of this requires railings, the cost will rise considerably (although the cost of bumpers will be correspondingly reduced). We find no clear

railing guidelines in the literature. A final design and a ruling from Reading's Building Inspector will determine where they are used.

Five hundred fifty eight tons of stone dust or recycled concrete are proposed to surface the earthen trail. Most of this material is destined for the remotest part of the greenway (sections 16 through 22). A temporary access road will have to be built to transport the material either through temporary site access from an abutting property or along the path of the greenway. This cost and the cost of handling the material are not included in the cost estimate. The alternative is to leave a natural trail surface throughout this section or to reduce the trail width so that less material needs to be transported. A natural trail surface would not drain well and is unlikely to meet the firmness requirement to be considered accessible. However, an exception is allowed to the "firm and stable" surface standard under the proposed accessibility guidelines where

> *compliance would cause substantial harm to cultural, historic, religious or significant natural features or characteristics; substantially alter the nature of the setting or purpose of the facility; require construction methods or materials that are prohibited by Federal, state or local regulations or statutes; or would not be feasible due to terrain or the prevailing construction practices.*[2]

VII. Regulations

Given the extent of wetland resource areas within the proposed trail route, the project will require permits under the MA Wetlands Protection Act and the Reading Wetlands Protection Bylaw, Section 5.7 of the General Bylaws, from the Conservation Commission. The boardwalk may be permitted as a limited project under 310 CMR 10.53(3)(j).

If the wetlands impacts exceed 5,000 square feet but are less than one acre, as appears likely, the project will also require a Water Quality Certification from the MA Department of Environmental Protection in accordance with Section 401 of the Federal Clean Waters Act and the Programmatic General Permit under Section 404.

The final design and the construction methodology must include an analysis of feasible alternatives and must be chosen to minimize wetlands impacts. The design and methodology must also provide mitigation for impacts. The trail route through the available public lands has been chosen to utilize upland areas where available, to avoid Certified Vernal Pools, and to be as short and direct as possible, while avoiding the taking of mature trees and distinctive landscape features. The helical piers under consideration have a much smaller footprint and a much less intrusive means of installation than wooden posts or other materials that might be used. The deck must be elevated above the 100-year flood elevations to allow free flow of water and minimize flood damage to the boardwalk. The height of the deck and spacing of the planks should also be designed to minimize shadow impacts and to allow free passage of small animals under the deck. Construction impacts can be minimized by working only when the ground is dry or frozen, by using matting and light-weight tracked vehicles, by seeking access over abutting private uplands to transport materials, and by using the boardwalk itself as a work platform after the piers and base supports are in place. Temporary impacts on wetlands plants and soils should be restored in place as the work proceeds.

Because a significant portion of the trail route passes through endangered species habitat, the project will also require a filing with the MA Natural Heritage and Endangered Species Program in accordance with the Endangered Species Act and 321 CMR 10:00, the Endangered Species Regulations. The Town should contact NHESP for preliminary review of the proposed trail route and materials, and ask for direction to avoid and minimize habitat impacts to the greatest extent feasible. Presumably the factors discussed above to minimize wetlands impacts will also help to address habitat impacts.

[2] Ibid.

Project proponents should also consult the Building Inspector to determine whether the project will require a Building Permit, and how the project should be designed to meet Building Code requirements for construction in floodplains and other structural considerations.

VIII. Funding

Appendix 4 contains a table of grant funding sources and volunteer resources for trail projects. The MA Recreational Trails Grant has the most potential for funding a project of this size and scope. Its $50,000 maximum award, however, would cover less than a tenth of the estimated cost. The Community Preservation Act, though outside the scope of this study, has the potential to fund a project of this size. It requires passage by Town Meeting and a Town-wide vote.

IX. Community Outreach Strategy

The goal of the community outreach strategy is to build community support for funding and implementation of the Ipswich River Greenway. Types of support would include financial support, volunteer labor, and conducting special events related to the Greenway.

The outreach program should convey the following information:

- Location of proposed boardwalk, its relation to existing trail networks, and the opportunities it will provide for recreational use;
- Technical feasibility of construction, and design options;
- Cost estimates for design options, including long-term maintenance considerations;
- Funding sources including grants, state programs, Town budget, and targeted fund-raising efforts;
- Time lines for fund-raising and construction, possibly phased as funds become available;
- How and when citizens can provide support – Town Meeting votes, fund-raising, volunteering.

Leadership for the outreach program would come from the Trails Committee, the Conservation Commission, the Town Forest Committee, and the Ipswich River Stream Team. Other organizations interested in trails should be contacted as part of the outreach campaign and encouraged to spread information to their respective memberships and the public as appropriate, as well as to recruit volunteers. These include the Public Works Department (Water Division, Recreation Division, Engineering Division), Reading Open Land Trust, Boy Scouts, Appalachian Mountain Club, Friends of Reading Recreation, and Walkable Reading., and REI. The Trails Committee is working to establish an Adopt-a-Trail program for volunteers to monitor, maintain, and construct trails. This group should also be included in the outreach campaign.

Local Media Outlets
The following local media outlets can be used to distribute information to the general public:

- Newspapers –
  - The Daily Times Chronicle, 531 Main Street, 781-944-2200
  - The Advocate
- Town Website – www.readingma.gov (Post information through Conservation and GIS offices)
- Cable TV Networks
  - RCTV, Inc., 224 Ash Street, 781-944-8888

Events
The following annual events provide opportunities to convey information to the general public, to recruit volunteers, and to conduct walks and other programs:

- Earth Day – April
- Town Meetings – April and November

- National Trails Day – June
- Friends and Family Day – June
- Guided trail walks and canoe trips – Spring, summer, and fall, 2008, e.g. IRWA Source to Sea Canoe trips.

X. Conclusion

Building the Ipswich River Greenway from the Lobs Pound Mill site to the Town Forest is feasible, but challenging technically, ecologically, and in a regulatory sense. The cost is estimated to be over $536,000. It will be higher if railings are installed and depending on the cost of transporting the stone surface material to the site; lower if the trail is made narrower or volunteer labor is used.

The helical pier boardwalk construction technique is well established and has minimal wetlands and flood impact – once installed. Installation can be done with relatively small machinery (a skid steer) and hand labor. Wetlands can be protected with wooden mats and by working in dry or frozen conditions. The remoteness of the inner reaches of the site bring the biggest technical challenge since over 550 tons of aggregate will have to be transported to the site.

The rich habitat of the upper reach of the Ipswich River is what make the greenway so enticing. The greatest ecological impact of the trail will be during construction. Once built, shading by the boardwalk will be the primary impact. Permitting of the trail under local and state regulations will require a thorough vetting of the proposed design and of installation techniques.

Reading has an active and energetic trails community recently tested by a smaller, all-volunteer trail building event. Demand for trails is high and the Town renewed its commitment to the health of the Ipswich River when it ceased water supply pumping. This segment of the Ipswich River Greenway would be a superb showcase for the river.

Ipswich River looking north from Mill Street (Fred Alexander photo)

June 24, 2008

Town of Reading
16 Lowell Street
Reading, Ma 01867
Attn: Kim Honetschlager

Re: Ipswich River Greenway
Boardwalk Feasibility Study

Dear Kim,

It was a pleasure to accompany you, Fran, and the other volunteers reviewing the proposed Greenway layout this spring. The scenic beauty and historical charm of the trail way corridor combine to make the site unique. It is appealing to know that the Greenway will incorporate the past land use signatures into the design and embrace the site history as part of the story behind the Greenway. All too often in an overly modernistic world the past struggles of our forefathers are erased by modern technologies. This site has a story to tell and I'm glad the Town is interested in helping preserve that story.

As you had suggested prior to the site visit, the former water control berm makes an excellent corridor for the majority of the boardwalk. It also will give a new purpose for the abandoned berm. It seems to be composed of the coarse parent materials excavated from the adjacent swale, which was usually the practice of that era, and it not only makes a good base for the boardwalk but also an adequate installation platform that will minimize potential wetland impacts during the construction process.

The earthen trail portion of the Greenway can be very low impact provided that temporary site access can be granted through one of the abutters properties. The volumes of stone dust/recycled concrete required are impractical to carry through the boardwalk footprints, but if access can not be granted by an abutter it is possible to transport the materials along the boardwalk corridor, but additional expenses for an adequate temporary access road and additional material handling would need to be anticipated. In order to have as minimum of an impact as possible, the stone product would also need to be moved into place prior to the construction the boardwalk. If access could be granted through an abutting property, it would be worth the extra time and effort to secure it, and the two trail sections could then be completed independently of each other.

Earthen trails can be very low impact structures in wetland areas. As we discussed on site, the design would consist of either 5/4 Pressure Treated Southern Yellow Pine or a 5/4 composite decking material on edge, slightly entrenched, and held in place by 4x4 posts. Between the two side edge boards, the existing dirt is then compacted with a small vibratory hand compactor and topped with either stone dust or recycled concrete. After the top coat has been placed, the stone product would need to be compacted again to meet ADA walking impaired standards.

The final section of boardwalk is proposed through an herbaceous emergent wetland, this segment poses the greatest degree of difficulty to minimize potential impacts. The first segment of boardwalk was proposed over an earthen berm vegetated by Scrub- shrub vegetation. Since Scrub- shrub vegetation is reasonably shade tolerant, there was no need to be overly concerned about abating shading impacts caused by the boardwalk structure. Unlike the first segment, the existing vegetation under the final boardwalk segment will need to meet the future standards for shade abatement which will relate to the height of the decking with a specified spacing between decking boards. Because these recommendations are frequently modified or updated, we prefer not to specify current recommendations because they may change prior to construction, please be aware that the regulations should be referred to at the time of construction.

Prior to construction we suggest that the contractor roll over the existing persistent senescent plant stems prior to the placement of the wooden mats for the working platform. This accomplishes two tasks, one the existing plant stems weave together protecting and enhancing the yield capacity of the underlying peat material. This is similar to how a non-woven fabric strengthens the yield strength of the material it is placed over. Additionally, leaving the senescent stem materials anchored in this manner prevents the migration and deposition of the senescent materials to other locations in the watershed. In locations where the herbaceous material is mown it frequently migrates to off site deposition areas and significantly raises the ground elevations at the deposition site. This can lead to a potential invasive species introduction by significantly altering the prevailing conditions within one growing season.

Once the working platform has been established the construction sequencing would be similar to the construction of the first boardwalk segment.

Given a reasonable level of care the entire project can be completed with a minimum of secondary construction impacts. Our suggestion would be to start the first segment of the boardwalk, over the former water control berm, in late summer and continue working through mid winter. If the entire project could not be completed within a few weeks of mid winter, the contractor should then prepare the site for the impending spring floods prior to the continuance of construction. Once the site has been adequately prepared for the impending high water season work could continue until the floodwaters rise. Once the floodwaters do arrive all work should stop until it is suitable to continue. Depending on the remaining tasks this may mean that all construction activities may be suspended until late summer to preserve the integrity of the resource and to adequately protect dependent wildlife activities.

In addition the Commission should also consider permit conditions that pertain to site conditions such as construction debris management and other potential ‘floatable debris’ management along with the Commission’s preferred erosion control methodologies and standard boilerplate conditions. Should you have any additional questions regarding these materials or the proposed projects please do not hesitate to contact me at (207) 252-4841.

Sincerely,
Geoffrey M. Wilson

Appendix 1
Trail Construction Budget

- The following trail budget is based on material costs collected in June of 2008.
- The following trail budget is priced with 10 options regarding final material surfaces for the Town to consider.
    - Trex Decking is a standard composite decking/outdoor building material that is readily available in sufficient quantities in this region. Because the material is extremely flexible it is not recommended for use as a trail edging for the earthen trail. More information can be acquired at the following location. http://www.trex.com/PRODUCTS/DEFAULT.ASPX?CAMPNAME=KEYWORDS&CAMPTYPE=2008ONLINE
    - 5/4 Pressure Treated Southern Yellow Pine is the industry standard for Pressure Treated decking surfaces. This product requires periodic maintenance to prevent premature degradation.
    - 2"x6" Pressure Treated Southern Yellow Pine Timber Decking is becoming a common specification on nature trail type structures. The thicker timbers prevent the degree of maintenance that is required with 5/4 PT, although most sources recommend surface treatments every 5 years to extend the products lifespan. This product is most often chosen because it is an acceptable compromise between the exorbitant cost of composite decking and the high maintenance costs of 5/4 PT.
    - Stone Dust Trail Surfaces are the standard for low impact walking impaired trail surfaces, however, in areas that are subject to periodic flooding and erosive forces compacted recycled concrete is a suitable surface.
    - Recycled Concrete is included as a consideration as top surface in portions of the Earthen Trail that are subject to flooding and excessive erosion due to trail gradient.
- Composite decking products have been included in the follow trail budget, but their use has been restricted to decked surfaces only. It is widely believed that composite product technologies are an evolving market and as such product use as structural beams and supports is an unproven market.

2,501.5 Lineal Feet of Boardwalk

1 ½ Square Shaft Helical Piers

502 sets @ $268/set $143,536.00

Piers 502
Pier Extensions 1004
Saddle Brackets 502

Cross Beams

504 2”x10”x8’ Pressure Treated Southern Yellow Pine @ $9.97ea $5,024.88

Joists

1500 2”x10”x10’ Pressure Treated Southern Yellow Pine @ $12.97ea $19,455.00

Joist Plates

225 2”x10”x10’ Pressure Treated Southern Yellow Pine @ $12.97ea $2,918.25

Decking

Option I 5/4 Trex Decking

2500 5/4 x 12’ @ $21.97ea $54,925.00

Option II 5/4 Pressure Treated Southern Yellow Pine

2500 5/4 x 12’ @ $9.97ea $24,925.00

Option III 2”x6”x12’ Pressure Treated Southern Yellow Pine

2500 2”x6”x 12’ @ $9.97ea $24,925.00

Bumpers Rail

500 4”x4”x10’ Pressure Treated Southern Yellow Pine @ $11.97ea $5,985.00

Rail Blocks

157 2”x4”x8’ Pressure Treated Southern Yellow Pine @ $7.97ea $1,251.29

Hardware

Galvanized ½” Hardware

2000 4 ½” Bolts @ $1.48ea $2,960.00
2000 Washers @ $0.19ea $380.00
2000 Lock Washers @ $0.29ea $580.00
2000 Nuts @ $0.22ea $440.00

2000 3/8”x9” Lags @ $1.75ea $3,500.00

Galvanized Rafter Ties

3000 Galvi. Ties rated for use with PT lumber @ $0.47ea $1,410.00

Galvanized Nails

8d Galvanized

30,000 @ $0.0697ea $2,091.00

16d Galvanized

18,000 @ $ 0.034ea $612.00

Decking Fasteners

3” Treated Decking Screws

60,000 Screws @ $0.0579ea $3,474.00

Standard 10% Mark-up on Materials

Option I 5/4 Trex Decking $24,504.24
Option II 5/4 PT Decking $21,504.24
Option III 2”x6” PT Decking $21,504.24

Standard 10% Contingency		
Option I	5/4 Trex Decking	$26,954.66
Option II	5/4 PT Decking	$23,654.66
Option III	2”x6” PT Decking	$23,654.66

Total Estimated Materials for Boardwalk

Option I	**5/4 Trex Decking**	**$300,001.32**
Option II	**5/4 PT Decking**	**$263,701.32**
Option III	**2”x6” PT Decking**	**$263,701.32**

Estimated Labor

Site Preparation		
120 Man Hours @ 42.75/man hour		$5,130.00
5 Days Skid Steer @ $850/day		$4,250.00
Pier Installation		
502 Piers	@ $167.00 each	$83,834.00
Boardwalk Construction		
Pier Prep.	112 Man Hours @ $42.75	$4,788.00
Joist Installation	480 Man Hours @ $42.75	$20,520.00
Decking Installation	800 Man Hours @ $42.75	$34,200.00
Rail Bumper Installation	80 Man Hours @ $42.75	$3,420.00
General Site Clean Up	40 Man Hours @ $42.75	$1,710.00
10% Miscellaneous and Overhead		$15,785.20
Total Boardwalk Installation Estimate		**$173,637.20**

2,095.0 Lineal Feet of Earthen Trail

Edging

Option IV 5/4 Pressure Treated Southern Yellow Pine
263 5/4x16' @ $14.97ea $3,937.11

Option V 5/4 Trex Decking
263 5/4x16' @ $28.97ea $7,619.11

4"x4" Post
Pressure Treated Southern Yellow Pine
265 4"x4"x8' @ $6.97ea $1,847.05

Galvanized Nails
16d Galvanized
1,590 @ $ 0.034ea $54.06

Top Coat

Option VI Stone Dust
558.6 Tons @ $14.25/Ton Delivered $7,960.05

Option VII 1 ½ Inch Recycled Concrete
558.6 Tons @ $12.25/Ton Delivered $6,842.85

Standard 10% Mark-Up

Option VI	$2,141.74
Option V	$2,030.02

10% Contingency

Option VI	$2,355.91
Option V	$2,233.02

Total Estimated Material Costs for Earthen Trail

Option VI	**$25,915.03**
Option V	**$24,563.22**

Estimated Labor

Site Prep		
72 Man Hours @ $42.75/Man Hour		$3,078.00
3 Days Skid Steer @ $850/Day	$2,550.00	
Installation		
240 Man Hours @ $42.75/Man Hour		$10,260.00
10 Days Skid Steer @ $850/Day		$8,500.00
10 % Miscellaneous and Overhead		$2,438.80
Total Estimated Labor for Earthen Trail Installation		**$26,826.80**

Bridges

(Spans included in the boardwalk sections of the Greenway have been included in the boardwalk budget.)

Spans included in the Earthen Trail Section:

1 ½" Square Shaft Helical Piers

6 Sets @ $268/Set $1,608.00

Piers 6
Pier Extensions 6
Saddle Brackets 6

Ledger Beams

8	2"x10"x8' Pressure Treated Southern Yellow Pine @ $9.97ea	$79.76

Joists

18	2"x10"x10' Pressure Treated Southern Yellow Pine @ $12.97ea	$233.46

Joist Plates

2	2"x10"x10' Pressure Treated Southern Yellow Pine @ $12.97ea	$25.94

Decking

Option VIII	5/4 Trex Decking	
60	5/4 x 12' @ $21.97ea	$1,318.20
Option IX	5/4 Pressure Treated Southern Yellow Pine	
60	5/4 x 12' @ $9.97ea	$598.20
Option X	2"x6"x12' Pressure Treated Southern Yellow Pine	
60	2"x6"x 12' @ $9.97ea	$598.20

Bumpers Rail

6	4"x4"x10' Pressure Treated Southern Yellow Pine @ $11.97ea	$71.82

Rail Blocks

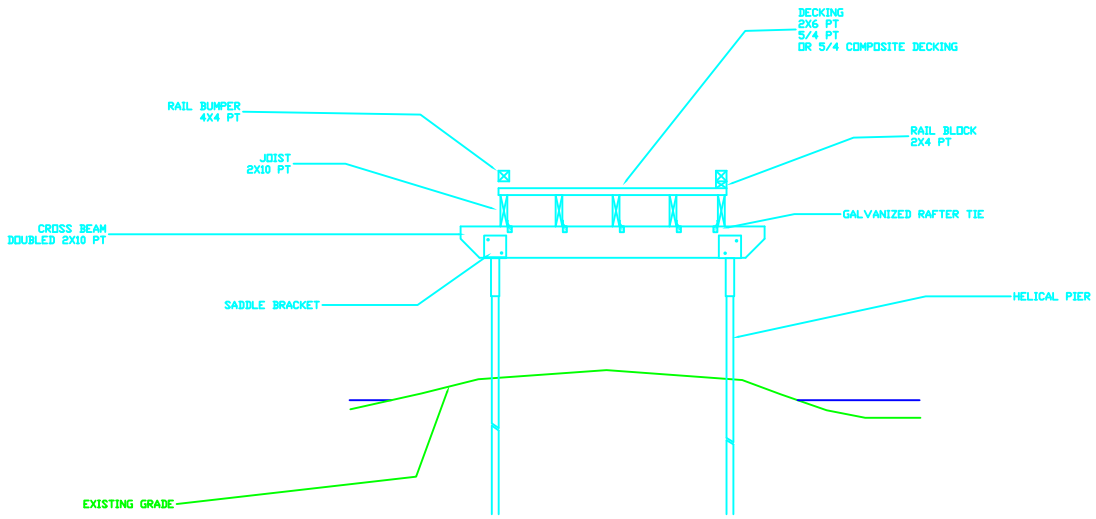
2	2"x4"x8' Pressure Treated Southern Yellow Pine @ $7.97	$15.94

Hardware

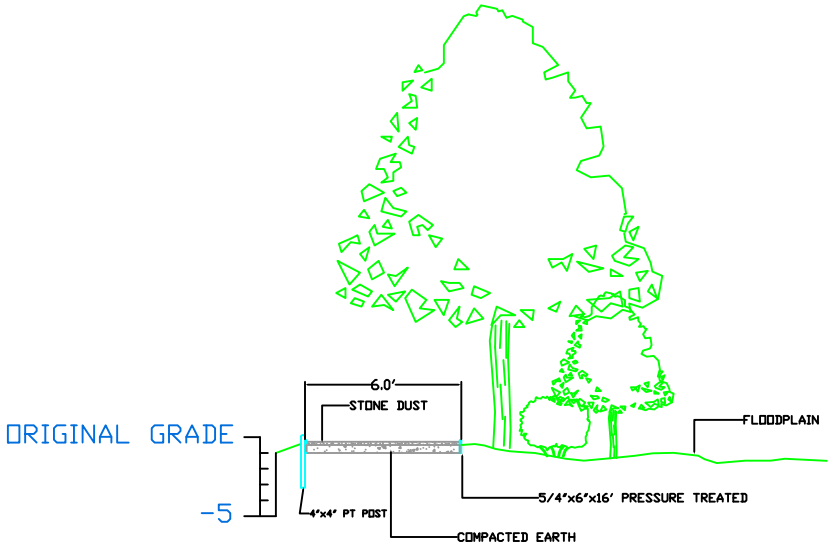
Galvanized ½" Hardware

24	4 ½" Bolts @ $1.48ea	$35.52
24	Washers @ $0.19ea	$4.56
24	Lock Washers @ $0.29ea	$6.96
24	Nuts @ $0.22ea	$5.28
24	3/8"x9" Lags	$42.00
Galvanized Rafter Ties		
38 Galvi. Ties @ $0.47ea		$17.86
Galvanized Nails		
	8d Galvanized	
	380 @ $0.0697ea	$26.22
	16d Galvanized	
	144 @ $ 0.034ea	$4.89
Decking Fasteners		
3" Treated Decking Screws		
1,440	Screws @ $0.0579ea	$83.37

Standard 10% Mark-up on Materials			
Option I	5/4 Trex Decking	$353.78	
Option II	5/4 PT Decking	$281.78	
Option III	2"x6" PT Decking		$281.78
Standard 10% Contingency			
Option I	5/4 Trex Decking	$389.15	
Option II	5/4 PT Decking	$309.95	
Option III	2"x6" PT Decking		$309.95
Total Estimated Bridge Materials			
Option I	**5/4 Trex Decking**		**$4,322.71**
Option II	**5/4 PT Decking**	**$3,451.51**	
Option III	**2"x6" PT Decking**		**$3,451.51**
Estimated Labor			
Site Preparation & Backfill			
16 Man Hours @ 42.75/man hour			$684.00
2 Days Skid Steer @ $850/day		$1,700.00	
Pier Installation			
6 Piers @ $167.00 each			$1,002.00
Boardwalk Construction			
Pier Prep.	2 Man Hours @ $42.75	$85.50	
Joist Installation	4 Man Hours @ $42.75	$171.00	
Decking Installation	30 Man Hours @ $42.75		$1,282.50
Rail Bumper Installation	2 Man Hours @ $42.75	$85.50	
General Site Clean Up	2 Man Hours @ $42.75	$85.50	
10% Miscellaneous and Overhead			$509.60
Total Bridge Installation Estimate		**$5,616.60**	



	TYPICAL BOARDWALK CROSS SECTION	NORTHEAST WETLAND RESTORATION 6/10/08



	TYPICAL EARTHEN TRAIL DETAIL	NORTHEAST WETLAND RESTORATION 4/15/07

Appendix 2
Accessibility Standard

Excerpt from: ***What is an accessible trail?*** *National Center on Accessibility. (Fall 2002, revised October 2007). Bloomington, IN: National Center on Accessibility, Indiana University-Bloomington. www.ncaonline.org.*

Accessible Routes, Outdoor Access Routes, & Trails

Accessible routes, outdoor access routes, and trails are all paths that have varying requirements based on their purpose, what they connect to and the environment they fall within. The following table identifies the technical provisions as they apply to each of the different paths.

Technical Provisions for Access Routes, Outdoor Recreation Access Routes & Trails

	Access Route (ADAAG)	Outdoor Access Route	Accessible[3] Trail
Surface	Stable, firm, Slip resistant	Firm and Stable	Firm and Stable *Exception**
Max Running Slope	1: 12	1: 20 (for any distance) 1: 12 (for max 50 ft) 1: 10 (for max 30 ft)	1: 20 (for any distance) 1: 12 (for max 200 ft) 1: 10 (for max 30 ft) 1: 8 (for max 10 ft) *Exception- 1: 7 (for 5 ft max for open drainage structures)* *Exception**
Max Cross Slope	1: 50	1: 33 *Exception- 1: 20 (for drainage purposes)*	1: 20 *Exception- 1: 10 (at the bottom of an open drain where clear tread width is a min of 42 inches)*
Min Clear Tread Width	36 inches 32 inches (for no more than 24 inches)	36 inches *Exception- 32 inches when * applies*	36 inches for any distance *Exception- 32 inches when * applies.*
Edge Protection	Where provided, min of 2 inches.	Where provided, min of 3 inches.	Where provided, 3 inches min.
Tread Obstacles	(Changes in Level) 1/4 inch (no beveled edge)	1 inch high max *Exception- 2 inches high max (where beveled with a*	2 inches high max *Exception- 3 inches max (where running*

[3] "Accessible" added for clarity and to match the terminology found in documents from other sources.

	1/4 - 1/2 inch must have a beveled edge with a max slope of 1: 2. Over 1/2 inch= ramp.	*slope no greater than 1: 2 and where * applies.)*	*and cross slopes are 1: 20 or less) Exception**
Passing Space	Every 200 feet where clear tread width is less than 60 inches, a minimum 60 X 60 inch space, or a t-shaped intersection of two walks or corridors with arms and stem extending min of 48 inches.	Every 200 feet where clear tread width is less than 60 inches, a minimum 60 X 60 inch space, or a t-shaped intersection of two walking surfaces with arms and stem extending min of 48 inches. *Exception- every 300 feet where * applies.*	Every 1000 feet where clear tread width is less than 60 inches, a 60 X 60 inch min passing space or a t-shaped intersection of two walking surfaces with arms and stem extending min of 48 inches. *Exception**
Resting Intervals	(Landings) 60 inch min length, min width as wide as the ramp run leading to it, if change in direction occurs, must have 60 X 60 inch space.	60 inches min length, width at least as wide as the widest portion of the trail segment leading to the resting interval and a max slope of 1: 33 *Exception- a max slope of 1: 20 is allowed for drainage purposes.*	60 inches min length, width at least as wide as the widest portion of the trail segment leading to the resting interval and a maximum slope of 1: 20. *Exception**
* (T302 Conditions for Departure) The provision may not apply if it cannot be provided because compliance would cause substantial harm to cultural, historic, religious or significant natural features or characteristics; substantially alter the nature of the setting or purpose of the facility; require construction methods or materials that are prohibited by Federal, state or local regulations or statutes; or would not be feasible due to terrain or the prevailing construction practices.			

The following definitions apply to the table:

Access Route (ADAAG): A continuous, unobstructed path connecting all accessible elements and spaces of a facility or building that meets the requirements of the Americans with Disabilities Act

Outdoor Access Route: Outdoor Recreation Access Routes (ORAR) are paths that connect accessible elements within a picnic area, campground, or designated trailhead. These paths provide a means of access for people with disabilities to reach built elements that are part of the recreation experience. For example, the paths leading from the parking lot to the visitor center or to a picnic area from a campground would be considered ORARs.
www.fhwa.dot.gov/Environment/sidewalk2/sidewalks215.htm

Accessible Trail: A designated route on land or water with public access for recreation or transportation purposes such as walking, jogging, … hiking, bicycling…
www.americantrails.org/resources/info/glossary.html#a

Appendix 3

Staff and Volunteer Participants

Consultant:

Geoffrey M. Wilson
Northeast Wetland Restoration
17 Keay Road
Berwick, ME 03901
(207) 252-4841

Town Staff:

Fran Fink, Conservation Administrator

Kim Honetschlager, GIS Coordinator

Conservation Commission Members:

Will Finch
Mark Wetzel

Reading/North Reading Stream Team:

Butch Conary
Bo Garrison
Carol Sandberg
Gina Snyder

Others:

Becca Fink

Town of Reading
16 Lowell Street
Reading, MA 01867

Finance Department
Technology Division
(781) 942-6631

Fax: (781) 942-9037
Website: www.ci.reading.ma.us

February 13, 2008

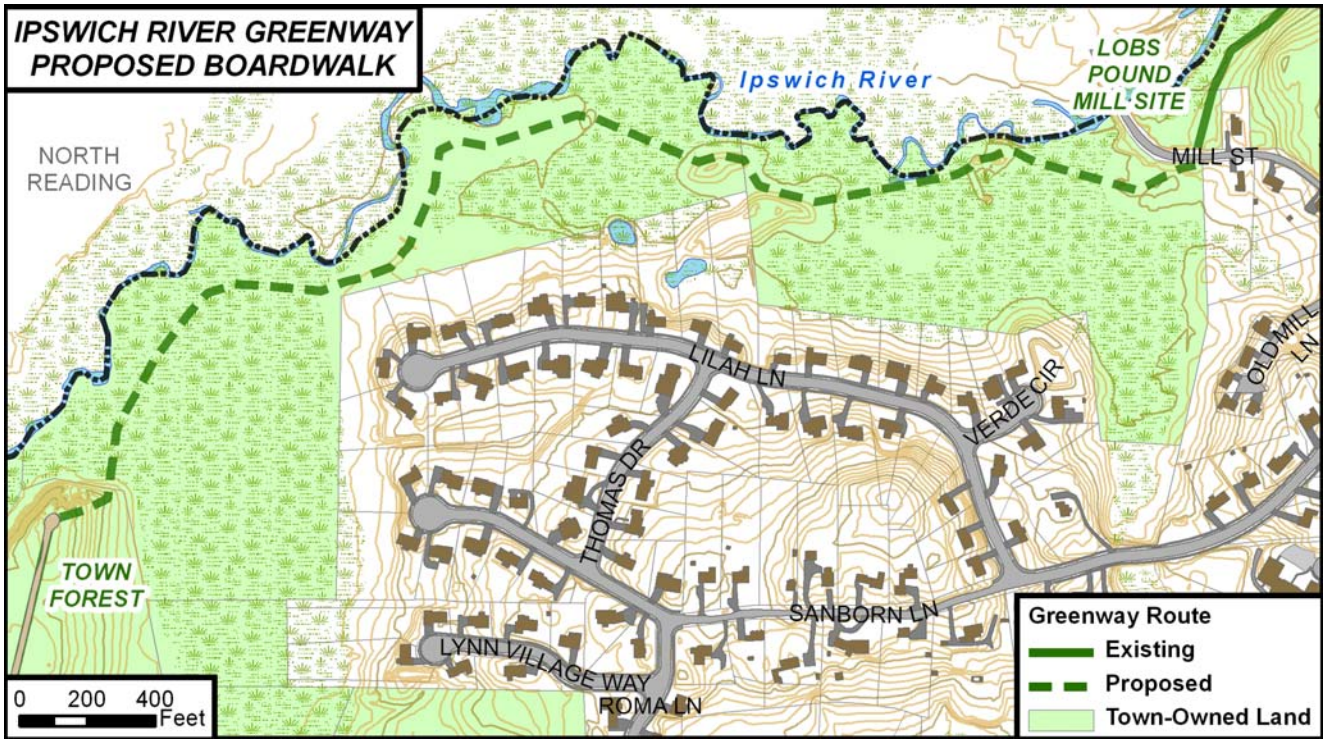
Dear residents of Lilah Lane, Verde Circle and Mill Street,

The Town of Reading has received a Mass Riverways grant to conduct a feasibility study for the proposed boardwalk section of the Ipswich River Greenway through Town-owned land bordering the Ipswich River. Staff, volunteers, and a consultant will conduct several field visits along the proposed route between now and June 30, 2008. The proposed trail section is anticipated to be primarily boardwalk with some at-grade sections.

Volunteers will flag and measure the proposed route. They may take soil samples and trim branches or clear fallen logs along the route to facilitate the study. Staff, volunteers, and the consultant will remain on Town-owned land. You are encouraged to introduce yourselves to the volunteers if you see them along the route. You know this area best and we'd like to hear from you. You are also encouraged to mark your property boundary if it is near the proposed route and it is not clearly marked. Staff will, however, have property maps on-hand to locate boundaries.

Please feel free to call or email me if you have any questions or concerns.

Kim Honetschlager
GIS Coordinator
781-942-6631
khonetschlager@ci.reading.ma.us



Appendix 4

GRANT AND VOLUNTEER RESOURCES

Grant Name	Grantor	Type of Assistance	Description	Grant Amount	Application Date	Notes	URL
Rivers, Trails, & Conservation Assistance Program	National Park Service	Technical assistance	RTCA provides technical assistance to locally-led natural resource conservation and outdoor recreation projects. The project applicant may be a state or local agency, tribe, non-profit organization, or citizens' group. Federal agencies, including the National Park Service, may apply only in collaboration with a non-federal partner. RTCA does not provide financial assistance to support project implementation.	non-monetary	1-Aug	1 year, renewable; assistance runs Oct. 1 - Sept. 30; approval is in early Nov.	http://www.nps.gov/ncrc/programs/rtca/
Recreational Trails Grant	Mass DCR	Reimbursement funding	The Recreational Trails Program provides funding on a reimbursement basis for a variety of trail protection, construction, and stewardship projects throughout Massachusetts. It is part of the national Recreational Trails Program, which is funded through the Federal Highway Administration (FHWA). Funds are disbursed to each state to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses.	$2,000 - $50,000	1-Oct	In-kind expectation: 20%	http://www.mass.gov/dcr/grants.htm
Greenways and Trails Demonstration Grants Program	Mass DCR	Not currently funded.	DCR provides grants to non-profit organizations, municipalities, and regional planning associations to support innovative greenway and trail projects throughout Massachusetts. DCR will also consider requests for multi-town greenway and trail projects. These additional funds are intended to promote linkages across town boundaries and foster partnerships among neighboring communities. The Grant Program favors feasible projects that produce tangible results, enjoy broad-based community support, and will serve as models for other greenway and trail initiatives. Projects eligible for funding include greenway and trail planning, mapping and resource assessment, greenway related public education and outreach, and greenway and trail management, maintenance, and expansion.	$5,000; $10,000 for multi-town projects	Not offered in 2008		http://www.mass.gov/dcr/stewardship/greenway/grants.htm
New England Wide Small Grants	New England Grassroots Environment Fund		The Small Grants Program provides grants up to $2,500 to fund community involvement in projects that address a wide range of environmental issues including: agriculture, air quality, alternative energy, aquifer protection, biotechnology, community gardens, environmental justice, energy conservation, forestry, global warming, land trusts, marine environment, public health, sprawl, sustainable communities, toxics and hazardous waste, trails, water quality, watershed management, wetlands, wildlife, and youth-organized environmental work.	up to $2,500			http://www.grassrootsfund.org/guide_1.html

Environmental Education Grant Program	PG&E CORP		PG&E Corporation's grant awards last year advanced important educational programs of local elementary and high schools, non-profit watershed associations, and a variety of other local conservation efforts. Proposed programs had to show a direct environmental benefit, contain a science component, help students understand their own responsibility to the environment and how to improve their local environment, and have a lasting legacy or impact. Other contributing factors in the selection process were the interactive nature of the program, as well as geographic and program diversity.	$100,000 awarded to 21 recipients in 2000.			http://64.233.169.104/search?q=cache:DYccgr2xuKwJ:www.pgecorp.com/news/press_releases/Release_Archive2000/012500press_release.shtml+ipswich+river+greenway&hl=en&ct=clnk&cd=2&gl=us
Stream Team Implementation Awards	Mass Riverways	Project implementation reimbursement grant	Projects with Existing Stream Teams: Current Stream Teams can use the Stream Team Implementation Awards to implement projects from their Action Plan or to advance proposals that clearly benefit riverine resources and are in line with the stream teams Action Plan. The Adopt-A-Stream Program will be available to work on implementation with these Stream Teams to provide additional technical assistance on their projects.	$3,000 to $10,000	30-Nov		www.massriverways.org
PARC Grant Program (Parkland Acquisition and Renovation for Communities)	Mass. Division of Conservations Services	grant	The PARC Program assists communities with the acquisition of parkland, as well as construction of new parks and renovation of existing parks. Towns with a population less than 35,000 qualify for a grant if proposals are designed to provide statewide or regional recreational facilities or a maximum grant of $50,000 for smaller recreational projects.	$50,000 since pop. < 35,000 & we wouldn't provide 100 parking spaces req. for a regional facility.	15-Jul	Focus on urban projects. Requires completed Open Space & Rec Plan. 58% reimbursement rate.	http://www.mass.gov/envir/dcs/urban/default.htm
Mass. Land and Water Conservation Fund (LWCF)	Mass. Division of Conservations Services	grant	This federal grant program funds the acquisition of conservation land, the acquisition of parkland, and the renovation or development of public outdoor recreation facilities submitted from municipalities and two state agencies: the Dept. of Conservation and Recreation and the Dept. of Fish and Game. Municipal projects may be considered for funding under the federal LWCF program or the appropriate DCS program – but can only be approved for funding through one grant source.	max award $500,000	15-Jul	Up to 50% reimbursment.	http://www.mass.gov/envir/dcs/landwater/default.htm
Unrestricted General Grants Program	Massachusetts Environmental Trust	grant	Funded by environmentsl license plate sales. Mostly educational & health initiatives by municipalities & non-profits. 1) Encourage cooperative efforts to raise environmental awareness. 2) Enable innovative approaches that can restore, protect, and improve water & water-related resources. List of past grants: www.agmconnect.org/massenvironmentaltrust/Unrestricted%20Grants%20to%20Date%20through%202007.doc	up to $60,000 over 3 years?	Letter of inquiry: Oct. 1; full proposal March 1.	Does not generally fund capital projects or land acquisition.	http://www.agmconnect.org/massenvironmentaltrust/met-home.htm
National Trails Fund	American Hiking Society	grant	Created in 1998, American Hiking Society's National Trails Fund is the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. Many of our favorite trails need major repairs due to an enormous backlog of badly needed maintenance. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools, and materials to protect America's cherished hiking trails.	$500 - $5,000	15-Aug	Applicant must be a 501(c)(3) so Town would have to partner with a non-profit.	http://www.americanhiking.org/NTF.aspx